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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/022,096	12/13/2001	Naoki Tanaka	4970/OK115	2886

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EXAMINER

SUMMONS, BARBARA

ART UNIT	PAPER NUMBER
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2817

DATE MAILED: 03/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/022,096

Applicant(s)

Tanaka et al.

Examiner

Baibala Summora

Group Art Unit

2817

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 (three) MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- ☐ Responsive to communication(s) filed on \_\_\_\_\_
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

## Disposition of Claims

- ☒ Claim(s) 1-12 is/are pending in the application.
- Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☒ Claim(s) 1-12 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement

## Application Papers

- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

- ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☒ All ☐ Some\* ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2+4
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other \_\_\_\_\_

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

2. Claims 1-6 are rejected under 35 U.S.C. § 102(b) as being anticipated by Yatsuda U.S. 5,521,453 (which is in the Patent family of JP 7-86870 cited by Applicants).

Fig. 3 of Yatsuda discloses a surface acoustic wave (SAW) filter comprising: a longitudinally-coupled double-mode SAW resonator filter 202 having three interdigital transducers (IDTs) 203, 204a, and 204b and reflectors 205a and 205b; a one-port resonator 207a having an IDT and reflectors (see Fig. 12 and col. 12, lns. 23-26), and being connected in series to the SAW resonator filter 202; and wherein the one-port resonator 207a has an antiresonant frequency (see  $f_a$  in Fig. 6 and col. 10, lns. 23-27) which is substantially equal to the high frequency side cutoff frequency of the SAW resonator filter 202. The SAW resonator filter 202 and the one-port resonator are formed on the same substrate (not shown)[see col. 10, lns. 11-13].

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3. Claims 1-6 are rejected under 35 U.S.C. § 102(b) as being anticipated by Nagatsuka et al. JP 6-260876 (cited by Applicants).

Fig. 5 of Nagatsuka et al. discloses a SAW filter comprising: a single piezoelectric substrate 1; a longitudinally-coupled double-mode SAW resonator filter 5 having three IDTs 2 and reflectors 3; a one-port resonator 4 having an IDT 2 and reflectors 3, and being connected in series to the SAW resonator filter 5; and wherein the one-port resonator 4 has an antiresonant frequency [see  $f_a$  in Fig. 3(a)] which is substantially equal to the high frequency side cutoff frequency [see  $f_s$  in Fig. 3(b)] of the SAW resonator filter 5 [see also the English language abstract attached].

4. Claims 1-6 are rejected under 35 U.S.C. § 102(b) as being anticipated by Hirota et al. JP 10-65481 (cited by Applicants).

Fig. 1 of Hirota et al. discloses a SAW filter comprising: a single piezoelectric substrate (not shown)[see col. 1, lns. 11-12 and col. 4, lns. 36-37]; a longitudinally-coupled double-mode SAW resonator filter 1 having three IDTs 3, 4a and 4b and reflectors 5a and 5b; a one-port resonator 2 having an IDT 6 and reflectors 7, and being connected in series to the SAW resonator filter 1; and wherein the one-port resonator 2 has an antiresonant frequency [see Fig. 2(b)] that is substantially equal to the high frequency side cutoff frequency [see Fig. 4] of the SAW resonator filter 1 [see also the English language abstract attached].

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5. Claims 7-12 are rejected under 35 U.S.C. §§ 102(b) and 102(e) as being anticipated by Fujii et al. JP 2000-315931 and its English language equivalent U.S. 6,462,632, respectively.

The following discussion references the U.S. Patent document.

Fig. 16 of Fujii et al. discloses a SAW filter comprising: a single piezoelectric substrate 8; a longitudinally-coupled double-mode SAW resonator filter 21 having three IDTs 3, 4a and 4b and reflectors 5a and 5b (see col. 7, lns. 63-65); a one-port resonator 22 having an IDT 23 and reflectors 24a and 24b, and being connected in series to the SAW resonator filter 21; and wherein the one-port resonator 22 has an antiresonant frequency that is substantially equal to the high frequency side cutoff frequency of the SAW resonator filter 21 (see Fig. 17 and col. 16, lns. 59-62). This reference solves the same problem in the art (see col. 17, lns. 20-25) by adjusting the resonator 22 so that the resonant and antiresonant frequencies are closer together (col. 17, lns. 5-13 and 25-30). One way disclosed to accomplish this is via withdrawal weighting of the resonator IDT, such as shown in Fig. 13C, which increases the pitch between the electrodes (i.e. measured from edge-to-edge or center-to-center of adjacent electrode fingers) so that the pitch of the electrode fingers of the IDT in the resonator is larger than the pitch of the electrode fingers of the IDTs of the filter (see also col. 8, lns. 51-55 and col. 17, lns. 39-40).

### *Conclusion*

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Ushiroku et al. U.S. 5,694,096 and Ikada U.S. 5,864,262 are U.S. patent family equivalents of Japanese references JP 7-30367 and JP 9-98065, respectively, cited by Applicants.

Murai U.S. 5,717,367 discloses a double mode filter (Figs. 2 and 8) and corrects the same problem in the art (see Fig. 3) by connecting resonators (Fig. 12) to the filter.

Kuroda U.S. 6,501,208 discloses a double mode filter 10 with a series connected one-port resonator 20 which solves the same problem in the art by making the electrode duty in the IDT of the one-port resonator smaller than the electrode duty of the IDTs in the filter (see the abstract).

7. Any inquiry concerning this communication should be directed to Barbara Summons at telephone number (703) 308-4947, FAX no. (703) 308-7724, receptionist's no. (703) 308-0956, Supervisory Examiner Bob Pascal (703) 308-4909.



Barbara Summons  
Patent Examiner  
Art Unit 2817

bs  
March 13, 2003  
(2 Attachments)